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From now on, we have decided to try to publish two reviews for textbooks: one from an experienced lecturer, and one from a postgraduate (and therefore, ceteris paribus, a recent undergraduate). This should give a view from both sides of the fence.

Basic vision: an introduction to visual perception by R Snowden, P Thompson, T Troscianko; Oxford University Press, Oxford, 408 pages, £27.99 paper (US $59.95) ISBN 978 0 19 928670 6

Lectures on the basics of vision produce two extreme reactions amongst students. For a minority, it's a life-changing experience full of wonder, excitement, and rigorous challenges. For a substantial number of others, sadly, the experience falls somewhere between perplexity and boredom. For each, it is difficult to understand the experience of the other; but for teachers of the subject—often in psychology departments—it is imperative that they do. The authors of *Basic Vision* recognise this problem and have written a book that aims to engage the disinterested student by being colourful, entertaining, and easy to read. It side-steps the 'hard stuff' and offers the reader an accessible account of 'just the bits that they need for the exam'. But what about academic standards, and isn't the hard stuff the formal basis that makes studying visual perception so satisfying in the first place? So speaks the extreme minority; others just don't see it that way. While many conventional texts encourage the laudable activities of deep thinking, tight experimentation, academic referencing, and detailed acknowledgments, one has to wonder just how effective they are at achieving these if they don't get read. As I understand it, the view of many psychology students is that those books are not written for them, they are for people who are *interested* in vision. And so here is the dilemma: to write a vision book worthy of a first or second year undergraduate degree course, but one that will be read and enjoyed by the majority. A challenge indeed.

In spite of the remit above, *Basic Vision* remains ambitious in its scope and thorough in its coverage, at least of the basics. It opens with a 'trailer', a concept I have not encountered before, where the problem of vision is introduced and the appetite is whetted for what is to come, including sneak previews of some of the key figures. There follows a series of chapters with familiar headings from 'spatial vision' and 'the perception of motion' to 'attention and neglect' and 'vision and action'. Each chapter finishes with an annotated reading list and tutorial questions, and the book finishes with a chapter on investigative methods. This means we do learn how the scientists figured it all out, but only after being told what it is they have found. This works well, and I was particularly pleased to see a fairly lengthy section of the chapter devoted to psychophysics—a method curiously absent from at least one general vision book on the market. But the strength of the book is not in its organisation (which is fairly conventional), but the way in which material is introduced. The student is coaxed into grappling with concepts that, when presented in a traditional academic style, can often seem bewildering. Here, spatial filters are strainers and colanders, image data are tea leaves and potatoes, low-pass filters are bathroom windows that leave your big bits on display, and Americans and Germans have nicer bathrooms than the rest of us. In fact, bathrooms are a recurring theme; whilst I already knew a bit (and only a bit) about colour vision, I now know a lot more about domestic plumbing and the relation between the two. (For those who don't know, parvocellular cells are like a single-lever monobloc mixer. And if you don't know what that is, you will have to read the book.)

Other concepts are dealt with more traditionally (eg spatial aftereffects of adaptation), where the key is not the use of analogies, but the reassuring off-beat style that comes from having real human beings behind the pen; how else could Goldilocks work her way into a story about gratings? But the authors do make (occasional) attempts to be 'serious scientists' by explaining, really quite clearly—and without the cliché of a square-wave—what is meant by spatial frequency and then, perhaps surprisingly, what this means for Sir Anthony Hopkins. The book also aims to be up to date; we are told about koniocellular cells, we see cortical anatomy through optical imaging, and the role of V4 in colour perception is challenged. In other places, however, convenient

though outdated concepts such as the hypercomplex cell are pursued, and I suspect that some of the anatomical wiring diagrams will raise an eyebrow or two. In the authors' own words, they have "... occasionally [well, quite often really] sacrificed what some people hold to be 'the truth' for the sake of a coherent story ..."

Practical issues are also addressed, including: why people speed in fog, why colour vision is good for sex (well, if you are a baboon at least), how to construct a magic eye picture, and how to detect a jam doughnut. The style is light-hearted throughout, and in places positively humorous. Several of my favourite jokes (about V1, anoraks, and train-spotting) appear to have been lost in the final edit, but it is nice that the British can use their knowledge of the lateral geniculate nucleus to understand what Americans mean by a club sandwich.

In sum, while the style of the book is novel, the basic aims—to teach core themes and concepts of visual perception—is not. Thus, while unusual in approach, the authors' real motives should be clear to all. Nevertheless, some tutors are likely to feel uncomfortable about recommending this book, perhaps even frowning on its frivolity and irreverence. This would be a shame, because I suspect that their students would thank them for it. After all, *Basic Vision* can be supplemented by any one of the more grown-up texts on the market, and the authors are the first to encourage this.

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I have never envied the task of an author of an introductory textbook on visual perception. It seems that, without enough due care and attention, there is always the risk of the book turning into a overly technical handbook, resulting in any unwary undergraduate being needlessly scared away from the subject. Indeed, as much as I enjoyed my introduction to vision in my second year as an undergraduate, the textbooks associated with the course were all too often bogged down with less appealing theoretical aspects of perception. Whilst an understanding of such concepts is, of course, essential to a complete understanding of the human visual system, there is always the risk that introducing them too early in a student's development will have them running for the hills, never to look at vision research again. And this is a real shame, for it is such an exciting area of research to get stuck into.

Basic Vision addresses this problem head on—gone are the worryingly long mathematical equations and pages and pages of block text that only make sense after a year of study. Instead, the book engages the readers from the outset, challenging them to get to grips with the underlying scientific and philosophical issues fundamental to vision research. One doesn't have to read too many pages into the book before it becomes abundantly clear that it was a labour of love for the authors. The enthusiasm instilled in the explanations not only makes the concepts tackled easy to understand, but also takes what the average undergraduate would consider rather dry topics within vision research, and makes it stimulating and fun to learn about.

The chapter structure is similar to most general vision textbooks, with the first few chapters progressing through the necessities of the basic physiology of the eye, following the route through V1 and up to higher cortical processing areas, culminating in welcome chapters on face perception and active approaches to vision. Particularly of interest to the budding vision researcher is the final chapter, which introduces the various sorts of techniques used in current research in an easily digestible manner. Abundant throughout are anecdotes and in-jokes, which, whilst succeeding in maintaining the reader's enjoyment early on, do become a little tiresome the further in one reads. This, however, is not a big problem if one is taking the standard reading approach to textbooks and just dipping into chapters here and there.

A more pressing problem that is evident early on is a lack of references within the text. Whilst references are given at the end of each chapter, broken down into sections based on the issues dealt with, it does seem a little strange that the authors break a fundamental rule of academic writing that should be reinforced in students at every opportunity. Whilst this issue is resolved somewhat in later chapters, it may pose potential problems early on. Part of the enjoyment of reading about exciting results and conclusions that researchers have come to in the field is being able to get hold of the original paper and read it oneself, and this isn't possible for the

vast majority of issues dealt with in the book. Moreover—and this may be a slightly jaded viewpoint—having references broken down based on topic at the end of each chapter may lead to undergraduates using this book simply as a speedy reference bank, ultimately omitting to read entire chapters, and in students incorrectly citing papers in essays or lab reports. Whilst in theory these problems shouldn't occur with the average undergraduate taking such a course, the fact that the temptation is there may lead to an increase in this sort of behaviour and work ethic developing.

That being said, within the context of the overall usefulness of the book this problem is a minor niggle and perhaps a little too cynical. The truth is that, as a second-year undergraduate taking my first steps into vision research, I would have loved a textbook like this. It shows vision research for what it really is—hard graft at the outset, but exceptionally exciting and rewarding once you get to grips with the basics. *Basic Vision* would be a powerful addition to any recommended reading list at any level within an undergraduate psychology degree.

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